

5

**DNA vaccines that expresses mutant ADP-ribosyltransferase
toxins which display reduced, or are devoid of, ADP-
ribosyltransferase activity**

10

ABSTRACT

15

The present invention provides DNA vaccines that direct the coincident expression of vaccine antigens coincidently with mutant ADP-ribosyltransferase toxins (mARTs), which display reduced, or are devoid of, ADP-ribosyltransferase activity, and methods for vaccinating animals with the same. In particular, the present invention provides DNA vaccines that direct the coincident expression of vaccine antigens and mARTs that are useful for vaccinating against viral, bacterial, parasitic pathogens, autoimmune antigens and transplantation antigens.

20